

# Internal Cabling Guide for the HP Smart Array 6400 Series Controller on an HP Integrity Server rx7620



May 2004 (Second Edition)  
Part Number 5990-8201

© 2004 Hewlett-Packard Development Company, L.P.

Microsoft® and Windows® are US registered trademarks of Microsoft Corporation.

Intel® Itanium™ Processor Family is a registered trademark of Intel Corporation in the US and other countries and is used under license.

Hewlett-Packard Company shall not be liable for technical or editorial errors or omissions contained herein. The information in this document is provided “as is” without warranty of any kind and is subject to change without notice. The warranties for HP products are set forth in the express limited warranty statements accompanying such products. Nothing herein should be construed as constituting an additional warranty.

Internal Cabling Guide for the HP Smart Array 6400 Series Controller on an HP Integrity Server rx7620  
Internal Cabling Guide for the HP Smart Array 6400 Series Controller on an HP Integrity Server rx7620

May 2004 (Second Edition)  
Part Number 5990-8201

---

# Contents

**Introduction..... 5**

**Installing the HP Smart Array 6400 Controller Card..... 6**

**Cabling the HP Smart Array 6400 Controller Card to the Server..... 6**

    Default SCSI Cabling ..... 6

    Recabling for RAID ..... 7

    Single Partition Configuration ..... 7

    Setting up RAID cabling on top left and top right hot plug hard drives ..... 8

    Dual Partition configuration ..... 9

    Setting up RAID cabling on top left and top right hot plug hard drives ..... 9

    Setting Up RAID cabling on the bottom hot plug hard drives..... 10

**IM7 Hard Disk Drive Mapping ..... 11**

**Configuring the Server Firmware and Software for RAID ..... 12**

**Where to Go for Additional Help ..... 12**



## Introduction

This document describes how to cable an HP Smart Array 6400 controller card, Ultra320 RAID card (HP product number A9890A), to the internal hard drives of an HP Server rx7620.

**NOTE:** These instructions do not apply if you are connecting the HP Smart Array 6400 Controller card to an external mass storage box. Proceed to the *HP Smart Array 6400 Controller User Guide* that shipped with your HP Smart Array 6400 Controller card.

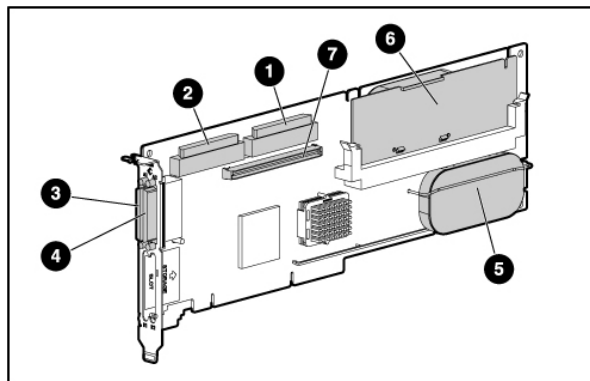
Before you begin, you will need:

Cable kit p/n A7027-63001

T-15 Torx driver

3/16-inch hex driver

HP Smart Array 6400 Controller card (see Figure 1)



**Figure 1: The Smart Array 6400 Controller Card**

Item ID	Description
1	Internal SCSI connector, port A1*
2	Internal SCSI connector, port A2*
3	External SCSI connector, port A1*
4	External SCSI connector, port A2*
5	Controller battery
6	Battery-backed cache module
7	Connector for expansion board
<b>*NOTE:</b> Do not use both connectors on a port simultaneously.	

---

## Installing the HP Smart Array 6400 Controller Card

1. If the server is running, shut down the OS, power off the server, and unplug the power cord.
2. Remove the top cover of the server.
3. The HP Smart Array 6400 controller card must be installed in PCI slot 0-8 or 1-7 for internal RAID (the Procurium card is embedded in slot 1-8, and slot 0-1 if a second Procurium card is ordered). If another PCI card is located in slot 0-8 or 1-7, remove the card and relocate it to another slot. Twist the blue paddle that also locks the PCI card in place by the bulkhead. Once the card is unlatched the tabs on the insulator/dividers are pulled to unseat the card. Insert the card in the empty slot. See picture below.



4. When the card is installed, proceed to the next section.

## Cabling the HP Smart Array 6400 Controller Card to the Server

### Default SCSI Cabling

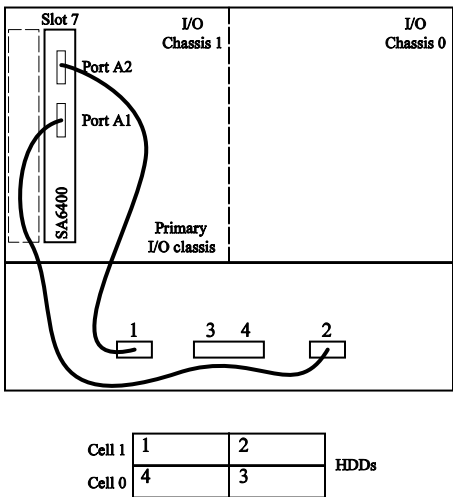
From the factory, the internal hot plug drives for the HP Integrity server rx7620 are connected to the integrated SCSI card as follows from the front of the server:

1. The top left hard has a SCSI connector cabled to the MP card.
2. The top right hard drive has a SCSI connector cabled to the Core I/O slot 8 cell 1.
3. The bottom left and right hard drive has a SCSI connector cabled to internal SCSI cell 0.

# Recabling for RAID

To use RAID with your hot plug drives, you will need to disconnect the internal SCSI cables from their embedded controller and use Cable kit (A7027-63001). Follow the instructions below.

## Single Partition Configuration



---

## Setting up RAID cabling on top left and top right hot plug hard drives

1. Be sure the HP Smart Array 6400 controller card is installed in PCI slot 1-7. Refer to *HP Smart Array 6400 User Guide*.
2. Retrieve two cables from the cable kit (A7027-63001).
3. Identify the new cable using the colored cable ties which are also contained in the cable kit (use two of the same color, one on each end).
4. Plug the end of the cable with the pull-tab into the SCSI connector port A1 on the Smart Array card. Repeat for SCSI connector port A2.
5. Route the other end of the cable out through the left hand side of the server.
6. Route the cable towards the front of the server and over to the mass storage connectors.
7. Unplug the existing SCSI ribbon cables for the top left and top right HDDs (utilize the label behind the connectors to determine which connector routes to which drive).
8. Plug the new cable from the Smart Array card Port A2 (closest to the bracket) into the mass storage connector for the top left drive.
9. Plug the new cable from the Smart Array card Port A1 (closest to the center of the board) into the mass storage connector for the top right drive.
10. Arrange the new cable so that all the slack is located in the PCI area.
11. Fold the cable slack and wrap a Kwik Wrap around it to maintain the slack. The cable slack allows for servicing of other PCI cards.

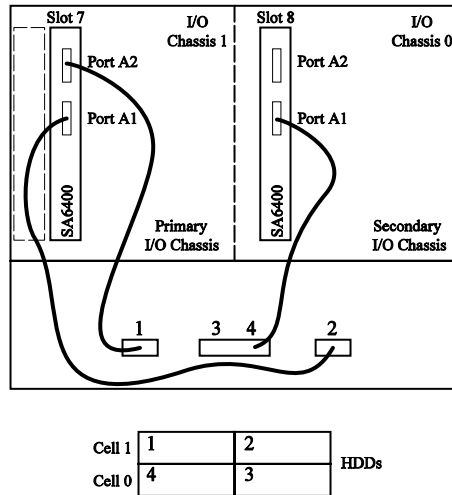


**Figure 2: Single Partition Configuration**



---

## Dual Partition configuration



## Setting up RAID cabling on top left and top right hot plug hard drives

12. Be sure the HP Smart Array 6400 controller card is installed in PCI slot 1-7. Refer to the *HP Smart Array 5300 User Guide*.
13. Retrieve two cables from the cable kit (A7027-63001).
14. Identify the new cable using the colored cable ties which are also contained in the cable kit (use two of the same color, one on each end).
15. Plug the end of the cable with the pull-tab into the SCSI connector port A1 on the Smart Array card. Repeat for SCSI connector port A2.
16. Route the other end of both cables out through the left hand side of the server.
17. Route both cables towards the front of the server and over to the mass storage connectors
18. Unplug the existing SCSI ribbon cables for the top left and top right HDDs (utilize the label behind the connectors to determine which connector routes to which drive).
19. Plug the new cable from the Smart Array card Port A2 (closest to the bracket) into the mass storage connector for the top left drive.
20. Plug the new cable from the Smart Array card Port A1 (closest to the center of the board) into the mass storage connector for the top right drive.
21. Arrange the new cable so that all the slack is located in the PCI area.
22. Fold the cable slack and wrap a Kwik Wrap around it to maintain the slack. The cable slack allows for servicing of other PCI cards.

---

## Setting Up RAID cabling on the bottom hot plug hard drives

1. Be sure the HP Smart Array 6400 controller card is installed in PCI slot 0-8. Refer to *HP Smart Array 6400 User Guide*.
2. Retrieve one cable from the cable kit (A7027-63001).
3. Identify the new cable using the colored cable ties which are also contained in the cable kit (use two of the same color, one on each end).
4. Plug the end of the cable with the pull-tab into the SCSI connector port A1 on the Smart Array card.
5. Route the other end of the cable out through the left hand side of the server.
6. Route the cable towards the front of the server and over to the mass storage connectors.
7. Unplug the existing SCSI ribbon cable for the bottom HDDs (utilize the label behind the connectors to determine which connector routes to which drive).
8. Plug the new cable from the Smart Array card into the mass storage connector for the bottom HDDs.
9. Arrange the new cable so that all the slack is located in the PCI area.
10. Fold the cable slack and wrap a Kwik Wrap around it to maintain the slack. The cable slack allows for servicing of other PCI cards.



**Figure 3: Dual Partition Configuration**

---

## IM7 Hard Disk Drive Mapping

The above internal drive configuration will produce the following mapping in IM7 when events occur on a target HDD .

SA 6400 Card Locations				HDD Identification				HDD Location
Cabinet	I/O Bay	I/O Chassis	Slot	Cabinet	Cell	Port	SCSI ID	Physical Drive
0	0	1	7	0	1	2	6	Top Left
0	0	1	7	0	1	1	6	Top Right
0	0	0	8	0	0	1	6	Bottom Left
0	0	0	8	0	0	1	5	Bottom Right

---

## Configuring the Server Firmware and Software for RAID

To complete the installation and set up RAID for your server's internal hot swap drives, follow the instructions in the document listed below.

### Where to Go for Additional Help

To complete the installation and set up RAID for your server's internal hot swap drives and to perform the following tasks, you will need to follow the instructions in the *HP Smart Array 6400 Controller User Guide*.

Configure your HP Smart Array 6400 controller card in an HP Integrity server. Use HP Smart Array 6400 utilities and command line options from the EFI Shell. The Option ROM Configuration for Arrays (ORCA) Utility can only be accessed when the system is booting. Press the F8 key at boot time to start ORCA to configure your RAID array.

Install operating system-specific HP Smart Array 6400 utilities and software that help you manage your RAID.

Use operating system-specific HP Smart Array 6400 utilities and software that help you manage your RAID. The Array Configuration Utility (ACU) can run online with the Microsoft® Windows® OS.

Configure the HP Smart Array 6400 for an external RAID storage system.